

1. A method for improving speech quality in a cellular communications network, said method comprising the steps of:

- selecting a cell from a plurality of cells forming the cellular communications network;
- evaluating a first plurality of mobile reports;
- determining, in response to evaluating the first plurality of mobile reports, a speech quality value within a portion of the cell; and
- decreasing the portion of the cell when a lower threshold exceeds the speech quality value; or
- increasing the portion of the cell when the speech quality value exceeds an upper threshold.

1           2. The method of Claim 1, wherein said step of  
2 decreasing the portion of the cell further includes adjusting  
3 at least one border offset parameter to reduce a size of the  
4 portion of the cell.

1           3. The method of Claim 1, wherein said step of  
2 decreasing the portion of the cell further includes adjusting  
3 a hierarchical cell structure threshold value of the cell to  
4 increase handovers of ongoing calls to another cell in a  
5 different layer of the cellular communications network.

1           4. The method of Claim 1, wherein said step of  
2 increasing the portion of the cell further includes adjusting  
3 at least one border offset parameter to increase a size of  
4 the portion of the cell.

1           5. The method of Claim 1, wherein said step of  
2 increasing the portion of the cell further includes adjusting  
3 a hierarchical cell structure threshold value of the cell to  
4 decrease handovers of ongoing calls to another cell in a  
5 different layer of the cellular communications network.

1           6.    The method of Claim 1, wherein said portion of the  
2           cell further includes a cell border area or a section of the  
3           cell border area.

1           7.    The method of Claim 1, further comprising the steps  
2           of:

3                determining an interfering cell from the plurality of  
4           cells, said interfering cell causes interference within said  
5           cell;

6                evaluating a second plurality of mobile reports; and

7                decreasing a portion of the interfering cell to improve  
8           the speech quality value in the cell.

1           8.    The method of Claim 7, wherein said step of  
2           decreasing a portion of the interfering cell further includes  
3           adjusting at least one border offset parameter to reduce a  
4           size of the portion of the interfering cell, said portion of  
5           the interfering cell includes a cell border area or a section  
6           of the cell border area.

1           9. The method of Claim 8, wherein said step of  
2     adjusting at least one border offset parameter further  
3     includes determining a strongest neighbor cell adjacent to  
4     the section of the interfering cell to be reduced in size.

1           10. The method of Claim 7, wherein said step of  
2     decreasing a portion of the interfering cell further includes  
3     adjusting a hierarchical cell structure threshold value of  
4     the interfering cell to increase handovers of ongoing calls  
5     to another cell in a different layer of the cellular  
6     communications network, said portion of the interfering cell  
7     includes a cell border area or a section of the cell border  
8     area.

11. The method of Claim 1, further comprising the steps  
of:  
determining an interfering cell from the plurality of  
cells, said interfering cell causes interference within said  
cell; and  
allocating a channel during a call setup or handover on  
a Broadcast Control Channel frequency used within the  
interfering cell to improve the speech quality value in the  
cell.

12. A method for improving speech quality in a cellular communications network, said method comprising the steps of:  
selecting a cell from a plurality of cells forming the cellular communications network;  
receiving a first plurality of mobile reports from a first transceiver located in the cell and from a corresponding number of first mobile terminals located in a portion of the cell, said portion of the cell including a cell border area or a section of the cell border area;  
determining, in response to receiving the first plurality of mobile reports, an average speech quality value of the portion of the cell;  
dynamically changing the portion of the cell by decreasing the portion when a lower threshold exceeds the average speech quality value, and increasing the portion when the average speech quality value exceeds an upper threshold;  
determining an interfering cell from the plurality of cells, said interfering cell causes interference within said cell;  
receiving a second plurality of mobile reports from a second transceiver located in the interfering cell and from

22 a corresponding number of seconds  
23 the interfering cell; and  
24 decreasing a portion of the  
25 the average speech quality value  
26 of the interfering cell including  
27 section of the cell border area.

13. The method of Claim 12, wherein said step of decreasing the portion of the cell further includes adjusting at least one border offset parameter to reduce a size of the portion of the cell, or adjusting a hierarchical cell structure threshold value of the cell to increase handovers of ongoing calls to another cell in a different layer of the cellular communications network.

14. The method of Claim 12, wherein said step of increasing the portion of the cell further includes adjusting at least one border offset parameter to increase a size of the portion of the cell, or adjusting a hierarchical cell structure threshold value of the cell to decrease handovers of ongoing calls to another cell in a different layer of the cellular communications network.



15. The method of Claim 12, wherein each of the first plurality of mobile reports further includes a plurality of downlink signal strengths and a downlink speech quality value determined at one of the first plurality of mobile terminals, and an uplink signal strength and an uplink speech quality value determined at the first transceiver.

16. The method of Claim 12, wherein said step of decreasing a portion of the interfering cell further includes adjusting at least one border offset parameter to reduce a size of the portion of the interfering cell, or adjusting a hierarchical cell structure threshold value of the interfering cell to increase handovers of ongoing calls to another cell in the different layer of the cellular communications network.

1           17. The method of Claim 16, wherein said step of  
2     adjusting at least one border offset parameter further  
3     includes determining a strongest neighbor cell adjacent to  
4     the section of the interfering cell to be reduced in size.  
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BORDER OFFSET

18. A cellular communications network comprising:  
a cell;  
a first transceiver station located within the cell;  
a first plurality of mobile terminals located in a  
portion of said cell, said portion includes a cell border  
area or a section of the cell border area; and  
a controller for receiving a first plurality of mobile  
reports, said controller further including:  
means for determining an average speech quality  
value of the portion of the cell in response to  
receiving the first plurality of mobile reports; and  
means for decreasing the portion of the cell when  
a lower threshold exceeds the average speech quality  
value; or  
means for increasing the portion of the cell when  
the average speech quality value exceeds an upper  
threshold.

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19. The cellular communications network of Claim 18,  
wherein said means for decreasing the portion of the cell  
further includes means for adjusting at least one border  
offset parameter to reduce a size of the portion of the cell.

20. The cellular communications network of Claim 18,  
wherein said means for decreasing the portion of the cell  
further includes means for adjusting a hierarchical cell  
structure threshold value of the cell to increase handovers  
of ongoing calls to another cell in a different layer of the  
cellular communications network.

21. The cellular communications network of Claim 18,  
wherein said means for increasing the portion of the cell  
further includes means for adjusting at least one border  
offset parameter to increase a size of the portion of the  
cell.

1           22. The cellular communications network of Claim 18,  
2 wherein said means for increasing the portion of the cell  
3 further includes means for adjusting a hierarchical cell  
4 structure threshold value of the cell to decrease handovers  
5 of ongoing calls to another cell in a different layer of the  
6 cellular communications network.

1           23. The cellular communications network of Claim 18,  
2 further comprising:

3           an interfering cell that causes interference within said  
4 cell;

5           a second transceiver station located within the  
6 interfering cell;

7           a second plurality of mobile terminals located within  
8 the interfering cell; and

9           said controller for receiving a second plurality of  
10 mobile reports, said controller further includes means for  
11 decreasing a portion of the interfering cell to improve the  
12 average speech quality value in the cell, said portion of the

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1           24. The cellular communications network of Claim 23,  
2 wherein said means for decreasing the portion of the  
3 interfering cell further includes means for adjusting at  
4 least one border offset parameter to reduce a size of the  
5 portion of the interfering cell.

1           25. The cellular communications network of Claim 24,  
2 wherein said means for adjusting at least one border offset  
3 parameter further includes means for determining a strongest  
4 neighbor cell adjacent to the section of the interfering cell  
5 to be reduced in size.

1           26. The cellular communications network of Claim 23,  
2 wherein said means for decreasing the portion of the  
3 interfering cell further includes means for adjusting a  
4 hierarchical cell structure threshold value of the  
5 interfering cell to increase handovers of ongoing calls to  
6 another cell in a different layer of the cellular  
7 communications network.

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